POSITIONS AND AREAS OF SUN-SPOTS—Continued

Date	Eastern standard time	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1934	h. m.	°	°	°				
June 17	12 32	−43.0	201.9	+3.0	.....	185	.....	U.S. Naval.
		+4.5	249.4	−30.0	.....	31	216	
June 18	11 10	−27.0	205.4	+3.0	.....	209	.....	Mount Wilson.
		+18.0	250.4	−29.0	.....	9	218	
June 19	13 12	−15.0	203.1	+2.5	.....	170	170	U.S. Naval.
June 20	11 6	−3.0	203.0	+2.5	.....	170	170	Do.
June 21	11 14	+14.0	206.7	+2.5	123	.....	123	Do.
June 22	13 30	+28.5	206.7	+2.5	100	.....	100	Do.
June 23	12 4	+41.0	206.8	+2.5	93	.....	93	Do.
June 24	12 6	+54.5	207.0	+2.5	69	.....	69	Do.
June 25	13 15	+68.0	206.6	+2.5	46	.....	46	Do.
June 26	11 10	+82.0	208.5	+2.5	46	.....	46	Do.
June 27	11 8	No spots			.....	.....	.....	Do.
June 28	13 18	Do.			.....	.....	.....	Do.
June 29	11 15	Do.			.....	.....	.....	Do.
June 30	11 11	Do.			.....	.....	.....	Do.
Mean daily area for 30 days					.....	.....	55	

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR JUNE 1934

(Dependent alone on observations at Zurich and its station at Arosa)

[Data furnished through the courtesy of Prof. W. Brunner, Eidgenössische Sternwarte, Zurich, Switzerland]

June 1934	Relative numbers	June 1934	Relative numbers	June 1934	Relative numbers
1	0	11	0	21	16
2	0	12	0	22	10
3	0	13	0	23	10
4	0	14	*d* 0	24	8
5	0	15	11	25	8
6	0	16	27	26	8
7	0	17	30	27	0
8	0	18	26	28	0
9	7	19	25	29	0
10	0	20	*b* 14	30	0

Mean: 30 days=6.7.

b=Passage of a large group or spot through the central meridian.
d=Entrance of a large or average-sized center of activity on the east limb.

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. Little, in Charge]

By L. T. SAMUELS

Free-air temperatures during June averaged mostly above normal, the largest departures occurring at Omaha. In striking contrast to the large positive departures at this station, those at Pembina to the northward were close to normal, being slightly below in the lower levels and slightly above in the higher levels. At Pensacola and San Diego, representing the Gulf and lower Pacific coast regions, respectively, the free-air temperatures averaged below normal. Relative humidity departures were in general of opposite sign to those of temperature with the largest values occurring at Pensacola and San Diego.

In connection with the difference in temperature departures at Omaha and Pembina as mentioned above, it is interesting to note that the resultant wind directions for the month at Omaha contained an appreciably greater south component than normal between the 1,000- and 4,000-meter levels and that the resultant velocities were considerably above normal at the latter station. Marked southerly components as compared to normal occurred in the resultant winds at a number of southern stations.

TABLE 1.—*Free-air temperatures and relative humidities obtained by airplanes during June 1934*

TEMPERATURES (° C.)

Altitude (meters) m.s.l.	Cleveland, Ohio[1] (246 meters) Mean	Departure from normal	Dallas, Tex.[2] (146 meters) Mean	Departure from normal	Norfolk, Va.[3] (3 meters) Mean	Departure from normal	Omaha, Nebr.[4] (300 meters) Mean	Departure from normal	Pembina, N.Dak.[5] (243 meters) Mean	Departure from normal	Pensacola, Fla.[3] (2 meters) Mean	Departure from normal	San Diego, Calif.[3] (5 meters) Mean	Departure from normal	Washington, D.C.[3] (2 meters) Mean	Departure from normal
Surface	18.9	.....	24.6	([6])	25.4	+2.2	19.8	([6])	11.9	([6])	25.6	+0.5	18.9	−0.7	21.2	−1.2
500	20.5	.....	25.3	([6])	23.3	+1.7	21.7	([6])	13.9	([6])	22.6	−.6	14.6	−1.7	21.7	+1.3
1,000	19.8	+4.0	23.8	+3.5	21.1	+1.8	22.8	+4.8	13.2	−0.9	19.7	−.8	12.8	−4.1	20.1	+1.9
1,500	17.5	+4.5	20.5	+2.5	.....	.....	20.4	+5.0	11.0	−.7	.....	.....	.....	.....	.....	.....
2,000	15.1	+4.6	17.5	+2.0	14.3	+1.0	17.2	+4.5	9.3	+.5	14.0	−.8	14.0	−2.5	15.9	+3.2
2,500	12.3	+4.5	14.7	+1.8	.....	.....	13.4	+3.7	6.7	+.7	.....	.....	.....	.....	.....	.....
3,000	9.2	+4.1	12.0	+1.9	8.9	+1.0	9.5	+2.8	3.9	+.8	8.5	−.7	9.4	−1.6	10.3	+3.1
4,000	2.7	+2.9	5.1	+.7	.....	.....	2.2	+1.9	−2.0	+.1	3.6	−.1	3.2	−1.3	3.3	+2.4
5,000	−3.5	+2.6	−2.4	−.5	.....	.....	−4.9	+.8	−7.9	+.2	−1.7	+.4	.....	.....	−3.6	+2.3

RELATIVE HUMIDITY (PERCENT)

Surface	76	.....	74	([6])	75	+1	79	([6])	86	([6])	85	+5	70	+1	79	+11
500	65	.....	69	([6])	68	+1	67	([6])	74	([6])	81	+7	80	+3	69	+6
1,000	57	−10	63	−6	64	+1	53	−11	66	+1	78	+10	76	+18	66	+6
1,500	56	−10	63	+4	.....	.....	50	−11	60	−2	.....	.....	.....	.....	.....	.....
2,000	52	−10	58	+7	63	+3	47	−11	54	−6	77	+14	38	+13	65	+5
2,500	52	−5	48	+1	.....	.....	49	−7	53	−5	.....	.....	.....	.....	.....	.....
3,000	49	−4	41	−2	49	−3	50	−4	56	+1	70	+17	29	+12	53	0
4,000	50	+4	40	+1	.....	.....	52	0	54	+6	64	+18	25	+10	53	+5
5,000	47	+7	39	−4	.....	.....	47	−5	49	0	56	+17	.....	.....	40	+5

Times of observations: Weather Bureau, 5 a.m.; Navy, 7 a.m.; E. S. T.

[1] Temperature departures based on normals determined by extrapolating latitudinally those of Royal Center, Ind., and Due West, S.C. Humidity departures based on normals of Royal Center, Ind.

[2] Temperature departures based on normals determined by interpolating latitudinally those of Groesbeck, Tex., and Broken Arrow, Okla. Humidity departures based on normals of Groesbeck, Tex.

[3] Naval air stations.

[4] Temperature and humidity departures based on normals of Drexel, Nebr.

[5] Temperature departures based on normals determined by extrapolating latitudinally those of Ellendale, N.Dak., and Drexel, Nebr. Humidity departures based on normals of Ellendale, N.Dak.

[6] Surface and 500-meter departures omitted because of difference in time of day between airplane observations and those of kites upon which the normals are based.